Field Notes

In an effort to share some of the natural history observations made during the fall bottom trawl survey, we have requested that the Chief Scientists on each part of the cruise comment on some of the more interesting catches that were brought aboard the *FRV ALBATROSS IV*.

Rare Boarfish Capture:

An exciting capture this year occurred off of North Carolina. Normally, the main representative of the boarfishes, the family Caproidae, on our surveys is the deepbody boarfish, *Antigonia capros* (Lowe, 1843). These are bright red, spiny skinned fishes that have the unusual feature of a wider body depth than length. Visually, they are quite striking with the combination of beautiful red color and eye-catching shape. In our catches, they vary in size from 5 to 20 cm, and are usually caught in depths between 50 and 100 fathoms. Another, more diminutive member of the family on our Atlantic coast is the shortspine boarfish, *Antigonia combatia*, described relatively recently (in 1958) by Berry and Rathjen. This fish is very similar in appearance to the deepbody boarfish, but the body depth does not exceed the length. This fall a shortspine boarfish was captured on station 155. This represents the first capture in over 40 years of trawling on the northeast coast of the U.S. The specimen was 6 cm total length. Shortspine boarfish can be distinguished from deepbody boarfish by the number of spines in the dorsal fin, the shortspine having between 9-10 and the deepbody having between 7-9 spines. What happens when you get a fish with 9 spines is the question that usually comes to mind and in this case that is answered by counting the number of dorsal soft rays following the spines. The shortspine will have between 26-30 soft rays in the dorsal fin and the deepbody will have 31-37. In general the shortspine boarfish is a smaller fish than its cousin, with a maximum length of 118 mm SL reported in Fishes of the Gulf of Mexico (McEachern and Fechhelm, 1998). For this reason a closer look at the smaller size ranges of *Antigonia capros* in any trawl catches off our northeast coast is warranted. It might just pay off someday with a rare capture of a fascinating fish! Don't hold your breath waiting to see one though - this rare fish took us 40 years to capture.

Fish Outside their Normal Range:

Other occurrences of fish that appeared to be out of their normal distribution range for this time of year were the capture of eight bigeye, *Priacantuhs arenatus* (Cuvier, 1829), four mackerel scad, *Decapterus macerellus*, (Cuvier, 1833) and a 3 cm bulleye, *Cookeolus boops* (Schneider, 1801). These fish were caught on stations 239-242 which were clustered in the Cultivator Shoals/Little Georges area and had bottom temperatures in the 60 degree range as compared to the surrounding 40-50 degree bottom temperatures on the rest of the Bank. This is the first time in our 40 year time series that a bulleye has been caught on Georges even though its stated range is from Nova Scotia to Buenos Aires, Argentina (Atlantic Fishes of Canada, Scott and Scott, 1988).

Haddock Recruitment:
The big news of the fall season was the extremely high abundance of young haddock, possibly indicating an extremely large 2003 year class. The NEFSC autumn bottom trawl survey captured an average of 153 age zero haddock per tow on Georges Bank. That's the highest ever recorded in the 41 years of the survey's operations. The large catch rate for the 2003 year class was nearly twice as high as the previous record in 1963, and about 30 times the average since 1963. The 1963 year class eventually became the largest group of one-year-old haddock ever observed - 486 million fish. Further survey work to be conducted by the Northeast Fisheries Science Center and the Canadian Department of Fisheries and Oceans in 2004 will allow us to refine the estimated size of this year class.

Research also indicates that the haddock stock may have passed an important milestone. Historically, when the haddock spawning biomass is above 75,000 metric tons, the odds of an above-average year-class are 30 times greater than when the spawning biomass is below that level. There are 120,000 metric tons of spawners out there now, the most since 1967, and about ten times more than there was in 1993, before groundfish rebuilding began in earnest.

The stock may also be benefiting from optimum conditions for good survival of eggs and larvae. Wind driven currents during the spring of 2003 appear to have been quite different from other years, and may have resulted in increased retention of eggs on Georges Bank. Thus, favorable environmental conditions may have also contributed to a high survival rate from spawning to the early juvenile stage for the 2003 year class.

One of the key sources of information produced by research vessel surveys are estimates of incoming year classes of fish in advance of their recruitment to the fishery. In this case, indications of the successful recruitment of haddock represent outstanding news for fishers and fishery managers.

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